

Humanitarian Assistance in Syria

Analysis Technical Review



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| 13. ABSTRACT (maximum 200 words) In July to October 2014 TRAC conducted a technical review of the Humanitarian Assistance in Syria Analysis conducted at TRAC-WSMR in support of CENTCOM Forward-Jordon (CF-J) in 2104 to inform and support analysis on Humanitarian Assistance (HA) related decisions to improving conditions in southern Syria. TRAC provided an assessment framework to CF-J that included measures and data sources to identify the basic needs, match those needs with appropriate type and quantity of HA, and assess effectiveness after HA has been delivered to refine coordination. TRAC delivered two sets of products to CF-J and these are the subject of this review. The review produced 17 specific observations. No substantial weakness was found in the technical products produced for this project and several areas for sustaining the technical merit of the analysis were identified. This review prototyped the emerging TRAC Technical Review Process to be implemented in FY15. | | | | |
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LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|--------|---------------------------------|
| AAR | After Action Review |
| CJ-F | CENTCOM Forward in Jordan |
| DA | Department of the Army |
| DCMP | Data Collection Management Plan |
| EDEs | Essential Data Elements |
| HA | Humanitarian Assistance |
| TRAC | TRADOC Analysis Center |
| TRADOC | Training and Doctrine Command |
| WSMR | White Sands Missile Range |

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SECTION 1. BACKGROUND

TRAC provided analysis support to CENTCOM Forward-Jordan (CF-J) in 2014 to inform and support analysis on Humanitarian Assistance (HA) related decisions to improve conditions in southern Syria. Analysis was led and conducted by Ms. Sarah Holden at TRAC-WSMR. In July to October 2014 TRAC conducted a technical review of the products delivered to CF-J.

Mr. Leroy Jackson led the technical review and solicited anonymous observations from a half dozen TRAC analysts primarily at TRAC-MTRY and one NPS faculty member. This review also served a proof of principle for the formal TRAC Technical Review Program to be implemented in FY15.

1.1. PROBLEM STATEMENT

The inflow of refugees and conflict spill over resulting from the Syrian Civil War is causing instability in Jordan. The US Embassy-Amman has asked CENTCOM Forward-Jordan (CF-J) to inform and support them on Humanitarian Assistance (HA) related decisions to improve conditions in southern Syria.

1.2. OBJECTIVE

To enable more effective HA by improving CF-J's ability to inform US Embassy-Amman decisions about HA to southern Syria.

1.3. SCOPE

TRAC will provide an assessment framework to CF-J that includes measures and data sources to identify the basic needs, match those needs with appropriate type and quantity of HA, and assess effectiveness after HA has been delivered to refine coordination.

1.4. PRODUCTS

TRAC delivered two sets of products as listed below.

1.4.1 First deliverable to CF-J.

- Data Collection Management Plan (DCMP worksheet).
- Study questions, measures, and essential data elements (EDEs).
- Potential data sources and sources associated assessment score.
- Data source assessment details.
- Data Source List and Assessment (DataSrcAssessment worksheet).
- Data Sources & Source Assessment.

1.4.2 Second deliverable to CF-J.

- Assessment Framework (tools) and User Guides.
- Forecasting (CAS, REF, REQHA & VIOevents).
- Simple Regression (CASREF, CASREF_bsoc10Feb14, REQREF, VIOCAS & VIOREF).
- Multiple Linear Regression (CASQREF, CASVIOREF, VIOREQREF).

SECTION 2. TECHNICAL REVIEW PROBLEM STATEMENT

2.1. PURPOSE

Review the products provided to CF-J in order to identify technical strengths and weaknesses in the analysis methodologies and supporting documentation.

2.2. APPROACH

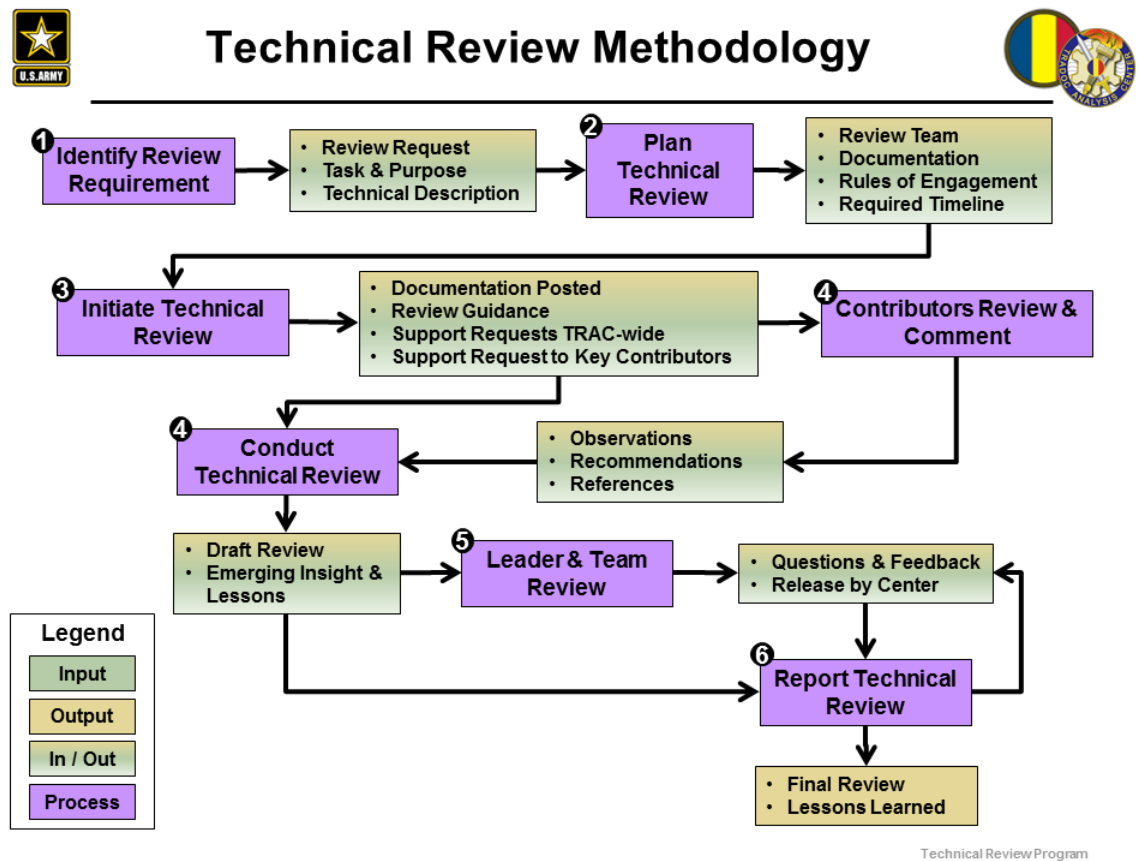
The technical review lead coordinated the review requirements with the WSMR analysts. Prior attendance at the Syrian HA measurement space meeting reduced the need for extensive background discovery. The WSMR analyst provided the supporting documentation as delivered to CF-J. There were no milestones or other deadlines mandating a quick-turn review.

The lead analyst solicited review from a half dozen TRAC analysts primarily at TRAC-MTRY. Analysts were selected based on education and experience. The lead analyst also solicited an informal review from an NPS faculty member. Contributing analysts were asked to focus on the technical merit of the work, but to also consider the appropriateness of observations for the intended use by deployed analysts at CF-J. Analysts were allowed to submit anonymous comments through an internet capability; however, some analysts chose to email comments to the review lead. Two TRAC-MTRY analysts also assisted in reviewing comments with the review lead.

SECTION 3. METHODOLOGY

The graphic below depicts the draft TRAC technical review methodology, which is described subsequently in this section. This review prototyped this methodology and followed these six steps.

The observations by the contributors were compiled in a spreadsheet. The fourteen observations provided were parsed into seventeen observations since several comments addressed multiple topics. Some observations among the seventeen were derived from multiple observations that were consolidated.



1. The leader(s) identifying the review requirement direct developing the review request that includes the task and purpose, scope, suggested rules of engagement (including sensitivity of products for review), and a technical description of the expected review products.

2. The request for technical review is processed by the sponsoring Center operations and leadership to support (1) identifying a review lead and team members, as needed, (2) rules of engagement for the review, and (3) required timeline and other supporting administrative instructions. The TRAC Technical Director reviews the request and supports TRAC and Center leaders and operations staff planning.

3. The technical review lead initiates technical review distributing documentation and guidance while organizing the effort of contributors. TRAC Technical Director supports the technical review lead, provides technical guidance, and troubleshoots issues related to the review.

4. Contributors including members of the technical review team review the documentation and develop AAR-style comments. The technical review team reviews comments submitted by contributors and requests clarification where necessary. The technical review team consolidates comments into emerging insights and potential lessons identified. The technical review team drafts a review report, typically a scripted briefing or technical note. The Technical Director supports the review team as necessary.

5. The technical review team briefs the technical review results to responsible leader and technical team representatives. This begins the process of formal feedback and review revision until the technical review is approved and released by the supporting center. The technical review team finalizes the review report. The Technical Director supports the review team, center leaders and the technical team representatives.

SECTION 4. REVIEW RESULTS

The review produced seventeen specific observations. No substantial weakness was found in the technical products produced for this project and several areas for sustaining the technical merit of the analysis were identified. This review also prototyped the emerging TRAC Technical Review Process to be implemented in FY15.

Observations are listed in the first section below with discussion and, where appropriate, recommendations. Recommendations are generally categorized as ‘noted’, ‘improve’ or ‘sustain’ with additional comments where appropriate. Follow-up questions and answers for the WSMR analyst are listed in the second section.

4.1 OBSERVATIONS

4.1.1 Casualty Prediction

Observation. From the report it was not clear what evidence and assumptions support the belief that forecasting casualties is valid.

Discussion. Substantial evidence supports the claim that violence and lack of HA are the main reasons why refugees come from Syria into Jordan. Also, a study using violent events and regression (VIOev) used violence successfully. It can be reasonably assumed that the system is in a steady state so that time-series methods apply over the applicable time periods.

Recommendation. Noted; consider an assumption about time series analysis and whether the system is in a steady-state allowing prediction.

4.1.2 Weighting Method

Observation. The weighting method is not straightforward and it is unclear in an initial reading how someone might alter the weights.

Discussion. Weighted moving average requires that the split be at the midpoint of the time period for the recent and older weight. This is an Excel limitation and the HA team desired to develop a tool in an application that was both familiar to the deploying

CF-J analysts and easily accessible on their computers. The effect is not judged to be relevant given other data limitations.

Recommendation. Noted.

4.1.3 Phrasing Assumptions

Observation. In phrasing assumptions, consider phrasing like, "Databases and reports from government and NGOs are sufficiently reliable and valid", rather than "Databases and reports from government and NGOs are reliable and valid"

Discussion. None.

Recommendation. Improve per observation.

4.1.4 Problem Formulation

Observation. Excellent formulation of the final deliverable problem statement, objective, scope and assessment questions.

Discussion. None.

Recommendation. Sustain.

4.1.5 Data Collection Management Plan (DCMP)

Observation. DCMP and associated data source assessment and data source score breakdown are methodologically sound. The level of detail seems appropriate. Preference for CF-J data is explained and is justifiable. Consider addressing potential options for use of data available from multiple source data such as validation or explaining why this approach is not viable or appropriate.

Discussion. Lead WSMR analyst agrees with the observation. Potential uses included as background or context or supporting validation. For validity the analyst did develop categories that range from 'self-reported' to 'reported and used by others'. The HA team desired the opportunity to develop a data testing and validation tool to include with this project; however resources for the project were reduced and only those

capabilities deemed imperative were developed. Questions will remain about reliability of the source versus validity of the data.

Recommendation. Noted.

4.1.6 Expand Independent Variables

Observation. Consider expanding the study to include significant political or economic events as independent variables to affect refugee numbers. Significant political changes or economic sanctions could possibly be mapped to refugee increases.

Discussion. Agree. Political violence events were in one of the regression models.

Recommendation. Noted for future work.

4.1.7 Lag

Observation. The study showed that a 24 week lag produced the best correlation (using regression analysis and testing different lag times in weeks) between violent events and refugees (i.e., that it took 24 weeks for refugees to pack up and go to a refugee camp after a series of violent events.) When using moving averages it is recommended that the number of weeks be varied from $k = 4$ to 12.

Discussion. This is an example of the consequence of having more than one method. Lag is a simple regression approach, but the forecasting models lime moving averages were better.

Recommendation. Sustain testing of multiple methods where possible and continue to make it clear that the weaker method is not recommended.

4.1.8 Level and Duration of Violence

Observation. The study showed that a 24 week lag produced the best correlation (using regression analysis and testing different lag times in weeks) between violent events and refugees (i.e., that it took 24 weeks for refugees to pack up and go to a refugee camp after a series of violent events.) Is the level and duration of violence or both also potentially important?

Discussion. There were data limitations. It may be possible to use dummy variable for duration. Again, as in 4.1.7 above, accuracy of the results showed the forecasting method is better.

Recommendation. Noted.

4.1.9 Refuge Flow

Observation. The report stated that the team desired to forecast how many refugees would enter specific refugee camps given violence in Syria, but the nature of the data was such that they could not track where refugees were coming from so it was hard to project where they would end up. It might be possible to forecast where refugees might go if they isolate the dependent variable to just one of the refugee camps and then attempt to do the same multivariable time series analysis they did earlier but categorize the violence in Syria by region. The analysis may show the violence in a combination of regions may be highly correlated to increases in refugees in a specific camp while others are not. If feasible, this could be done for each refugee camp in turn.

Discussion. This was planned for the third phase which was cancelled given the reduction of resources for this project. Consider border crossings as the dependent variable; however, one border crossing site was for injured only. See final briefing.

Recommendation. Noted for future work.

4.1.10 Data Cleaning

Observation. Much of data analysis involves 'cleaning of the data.' During this step, abnormalities such as nonlinear relationships, nonconstant variance, discrepant observations, outliers (high influencers), and dependence are observed and corrected for. How are these and other issues with the data mitigated systematically?

Discussion. May not be appropriate for the deployed analyst in this situation as it may be beyond their training level. Intentionally omitted this aspect other than notes on interpolated data and notes on entering dates.

Recommendation. Noted for appropriate situations.

4.1.11 List of References

Observation. "The most common means for measuring the accuracy of forecasting models is either the MAD or the standard deviation of the forecasting errors." ~ Forecasting User's Guide. A list of references would be nice.

Discussion. A list was developed, but not provided.

Recommendation. Sustain.

4.1.12 Test Set

Observation. The instructions are clear about how to manipulate the worksheet. There does not seem to be a test set approach involved. Consider this may be a potential technical limitation.

Discussion. Considered, but not appropriate for Excel.

Recommendation. Noted.

4.1.13 Over-Fitting the Model

Observation. The instructions clearly explain how to manipulate the worksheet. Without knowledge of what the settings do, however, the skilled common user will over-fit of the model.

Discussion. Considered, but this is a limitation in working with the deployed analysts with limited training in statistics. Over-fitting is clearly an important concern.

Recommendation. Noted for appropriate situations.

4.1.14 Time-Series Data

Observation. It seems the assumption that the data is time-series is made, but not stated.

Discussion. This technical assumption seems obvious.

Recommendation. Noted.

4.1.15 Packaging Documentation

Observation. The document titled, 'SecondDeliverable.doc' seems to be the primary document. No document in the .zip file provided is clearly the main document.

Discussion. This is an artifact of packaging documents for each phase. There is a document that provides context for both deliverables and their content.

Recommendation. Improve.

4.1.16 DCMP Worksheet

Observation. Overall the products are good. The DCMP worksheet has a simple methodology that is beneficial in helping the staff determine which sources are of the highest quality for them to collect data for analysis.

Discussion. Noted.

Recommendation. Sustain.

4.1.17 Training Sample

Observation. Overall the products are good. The regression and forecasting spreadsheets achieve their objectives for the information that is important for the decision makers; however, if these spreadsheets are being used by non-ORSA's, then recommend some type of training exercise be included. The instruction sheet could serve as a back-up reference. I think including the model and tricks of the trade included in the instructions are good at helping non-ORSA's understand the limitations of the analysis.

Discussion. This training was accomplished at WSMR for the next two deploying analysts. The users are not necessarily non-ORSA's; however, they are working in a deployed setting.

Recommendation. Sustain.

4.2 FOLLOW-UP QUESTIONS

Did CJ-F provide requested feedback on the assessment framework? No feedback due to priorities of deployed analysts.

Has CJ-F reported on use of the assessment framework? No related analysis, but some requests for briefing products. This work will be presented at AORS.

Has TRAC or others conducted any subsequent related analysis? No.

Does the analysis team have observations to add? No.

Was an AAR conducted for this analysis? No AAR was conducted since this was a one-analyst effort at WSMR supporting the deployed analysts.

5. CONCLUSION

5.1 HUMANITARIAN ASSISTANCE IN SYRIA

TRAC provided an assessment framework to CF-J that included measures and data sources to identify the basic needs, match those needs with appropriate type and quantity of HA, and assess effectiveness after HA has been delivered to refine coordination. TRAC successfully delivered two sets of products to CF-J to meet this need. The technical review produced 17 specific observations. No substantial weakness was found in the technical products produced for this project and several areas for sustaining the technical merit of the analysis were identified.

5.2 TRAC TECHNICAL REVIEW PROGRAM PROTOTYPING

This review prototyped the emerging TRAC Technical Review Process to be implemented in FY15. It demonstrated the overall feasibility and potential value of the approach; however, a few practical implementation challenges were identified.

The most serious challenge was maintaining the anonymity of the contributors. The internet based method for submitting comments was insufficient and in several cases it was difficult to determine what aspect of the analysis was referenced in the comment. Providing more detailed and specific guidance to contributors to document comments will reduce this challenge and the other challenges identified. A method to dialogue about the comments (e.g., anonymous discussion board) should eliminate the challenge.